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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/972,814	10/05/2001	Hyun-Woo Lee	678-752 (P9924)	6754
28249	7590	09/26/2005	EXAMINER	
DILWORTH & BARRESE, LLP 333 EARLE OVINGTON BLVD. UNIONDALE, NY 11553			LY, ANH VU H	
			ART UNIT	PAPER NUMBER
			2667	

DATE MAILED: 09/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/972,814

Applicant(s)

LEE ET AL.

Examiner

Anh-Vu H. Ly

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on July 11, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-3 and 5-27 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/19/04, 6/4/04, 9/9/04, 7/13/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 1, 5, 8, and 18 are objected to because of the following informalities:

With respect to claims 1 and 5, in lines 3-4, "the same length" should be changed to - -a same length- -.

With respect to claims 8 and 18, in line 4, "the same length" should be changed to - -a same length- -.

Appropriate correction is required.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Korea on October 5, 2000 and November 9, 2000. It is noted, however, that applicant has not filed a certified copy of the 2000/59389 and 2000/67558 applications as required by 35 U.S.C. 119(b).

Information Disclosure Statement

3. The information disclosure statement filed April 19, 2004 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because English translations were not provided for CN 1248869 A and CN 1247439 A. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the

statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 and 5-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art disclosed in the specification on pages 1-10 and Figs. 1-10 and further in view of Heikkinen (WO 95/32558) and further in view of Lamoureux et al (US Patent No. 6,330,458 B1). Hereinafter, referred to as APA, Heikkinen, and Lamoureux.

With respect to claims 1 and 5, APA discloses a transmission apparatus in a CDMA mobile communication system (Fig. 10), wherein transmission frames each have a plurality of time slots (Fig. 1 and page 16, lines 3-4), and each of the time slots includes two data parts having the same length (Fig. 1, and page 16, lines 4-5), a midamble intervening between the data parts (Fig. 1, and page 16, lines 4-5), and a guard period for dividing the consecutive time slots (Fig. 1 and page 16, lines 4-5), the transmission apparatus modulating the frames into a radio signal with a modulation signal (Fig. 10, elements 1020, 1022, 1032, and 1034) and transmitting the modulated radio signal using a plurality of antennas (Fig. 10, elements ANT1 and ANT2), the transmission apparatus comprising: a power amplifier for amplifying the radio signal (Fig. 10, element 1026 or 1038);

APA does not disclose a controller for generating a switching control signal associated with the radio signal amplified by the power amplifier and a switch for switching the amplified radio signal from the power amplifier between a first and a second antenna in response to the switching control signal. Heikkinen discloses controller (Fig. 3, element 35) for generating a switching control signal associated with the radio signal amplified by the power amplifier (Fig. 3, element 32) and a switch (Fig. 3, element 33) for switching the amplified radio signal from the power amplifier between a first and a second antenna (Fig. 3, elements 34a, 34b, and 34c) in response to the switching control signal. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the features of generating a control signal and switching the amplified radio signal from the power amplifier between the antennas in APA's system, as suggested by Heikkinen to improve connection quality in a cellular radio system.

APA does not disclose that the control signal is generated in a guard period of time slots of a frame. Lamoureux discloses that the control signal is generated in a guard period of time slots of a frame (col. 3, lines 2-3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the feature of generating the control signal in a guard period of time slots in APA's system, as suggested by Lamoureux, to eliminate any disturbance to the user.

With respect to claims 2, 6, 10, and 20, APA discloses a TSTD scheme (Fig. 10). APA does not disclose wherein the controller generates the switching control signal in a guard period of the last time slot among the time slots of the frame associated with the radio signal amplified

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by the power amplifier. Lamoureux discloses that the controller generates the switching control signal in a guard period of the last time slot among the time slots of the frame associated with the radio signal amplified by the power amplifier (col. 3, lines 2-3 discloses that switching between antenna elements occurs during the guard times of the time slots. Herein, the guard times can be any guard time of any time slots, including the first, second, third, etc... and last guard time of last time slot among the time slots). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the feature of generating the control signal in a guard period of time slots in APA's system, as suggested by Lamoureux, to eliminate any disturbance to the user.

With respect to claims 3 and 7, APA discloses that wherein the guard period has a length of 96 chips (Fig. 1, GP has 96 chips).

With respect to claims 8 and 18, APA discloses a transmission apparatus (Fig. 10) in a CDMA mobile communication system, wherein transmission frames each have two sub-frames (Fig. 2), and each of the sub-frames has (i) a plurality of time slots (Fig. 3) each including two data parts having a same length (Fig. 4), a midamble intervening between the data parts (Fig. 4), and a first guard period for dividing the consecutive time slots (Fig. 4), (ii) a downlink pilot time slot (Fig. 3), (iii) a second guard period (Fig. 3) and (iv) an uplink pilot time slot, intervening between a first time and a second time slot among the time slots (Fig. 3), the transmission apparatus modulating the sub-frames into a radio signal with a modulation signal (Fig. 10, elements 1020, 1022, 1032, and 1034) and transmitting the modulated radio signal using a

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plurality of antennas (Fig. 10, elements ANT1 and ANT2), the transmission apparatus comprising: a power amplifier for amplifying the radio signal (Fig. 10, element 1026 or 1038);

APA does not disclose a controller for generating a switching control signal associated with the radio signal amplified by the power amplifier and a switch for switching the amplified radio signal from the power amplifier between a first and a second antenna in response to the switching control signal. Heikkinen discloses controller (Fig. 3, element 35) for generating a switching control signal associated with the radio signal amplified by the power amplifier (Fig. 3, element 32) and a switch (Fig. 3, element 33) for switching the amplified radio signal from the power amplifier between a first and a second antenna (Fig. 3, elements 34a, 34b, and 34c) in response to the switching control signal. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the features of generating a control signal and switching the amplified radio signal from the power amplifier between the antennas in APA's system, as suggested by Heikkinen to improve connection quality in a cellular radio system.

APA does not disclose that the switching control signal is generated in a non-transmission period of a sub-frame. Lamoureux discloses that the control signal is generated in a guard period of time slots of a frame (col. 3, lines 2-3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the feature of generating the control signal in a guard period of time slots in APA's system, as suggested by Lamoureux, to eliminate any disturbance to the user.

With respect to claims 9 and 19, APA discloses that wherein the non-transmission period is a first guard period of time slots of the sub-frame associated with the amplified radio signal (Fig. 3).

With respect to claims 11, APA discloses that wherein the first guard period has a length of 96 chips (Fig. 3, GP has a length of 96 chips).

With respect to claims 12 and 22, APA discloses that wherein the non-transmission period is a downlink non-transmission period of a sub-frame (Fig. 3, DwPTS).

With respect to claims 13 and 23, APA discloses that wherein the downlink non-transmission period includes the second guard period, the uplink pilot time slot and the second time slot (Fig. 3, GP, UpPTS, and TS1).

With respect to claims 14 and 24, APA discloses that wherein the downlink non-transmission period is 875 usec (page 18, lines 16-18).

With respect to claims 15 and 25, APA discloses that wherein the non-transmission period is an uplink non-transmission period of the sub-frame (Fig. 3).

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With respect to claims 16 and 26, APA discloses that wherein the uplink non-transmission period includes the first time slot, the downlink pilot time slot and the second guard period (Fig. 3, TS0, DwPTS, and GP).

With respect to claims 17 and 27, APA discloses that wherein the uplink non-transmission period is 825 usec (page 18, lines 21-22).

With respect to claim 21, APA discloses that wherein the first guard period has a length of 16 chips (Fig. 4, GP has a length of 16 chips).

Allowable Subject Matter

5. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Park et al (US Patent No. 6,766,146 B1) discloses channel communication device and method for mobile communication system using transmission antenna diversity.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H. Ly whose telephone number is 571-272-3175. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

avl


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2667 9/23/05